ENVIS CENTRE, CHANDIGARH
NewsLetter
Paryavaran - Patra
ISSN No. 0974-7087

Chandigarh State of Environment

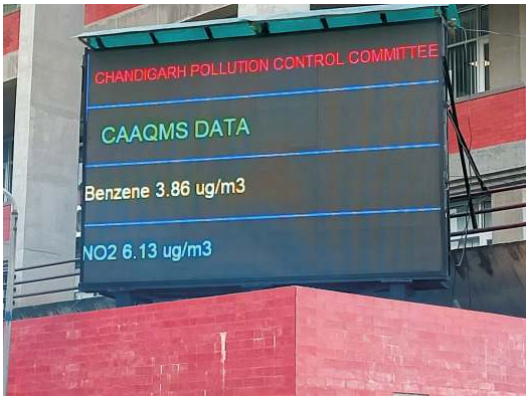
AMBIENT AIR QUALITY MONITORING AND BIO-WASTE MANAGEMENT AMIDST COVID-19 PANDEMIC

Introduction

Corona virus disease-2019 (COVID-19), an infectious disease identified in late December, 2019, in Wuhan city of China, was declared a pandemic by the World Health Organization. Most countries including India have announced some sort of lockdown to reduce the effects of COVID-19 and discontinue the transmission of novel corona virus. Major negative effects on the social and surrounding environment have been reported due to COVID-19, however positive effects have also been observed with respect to air quality. The pro-active initiative taken by India of imposing a nationwide lockdown from 24th march 2020, which was extended up to 30th May 2020, in addition to intermittent phases of lockdown, played an active role in limiting the proliferation of this harmful virus strain. Some of the major anthropogenic sectors contributing to air pollution are residential & construction activities, exhaust from industries, vehicular emissions, road re-suspension etc. In addition, other natural sources such as forest fires, landfill fires, thunderstorms, brick kilns, pollen dust, stubble burning etc actively contribute to air pollution.

On the contrary, there have been effective improvement in the ambient air quality of Chandigarh during the lock down period wherein rigorous travel restrictions have been imposed, continuous monitoring of air pollutants via Continuous Ambient Air Quality Monitoring Stations is being executed. There are multiple display boards notifying the current air quality of chandigarh at different locations.

Another issue being dealt is the generation, handling, treatment, disposal and management of COVID-19 bio-medical waste. For this purpose, CPCB has proposed adequate guidelines keeping in view the safety of waste handlers and a national level data management android app, namely- 'COVID19BWM' for efficient management of COVID-19 Bio-medical waste.



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(VOLUME 15.1.1)
April2020-June 2020
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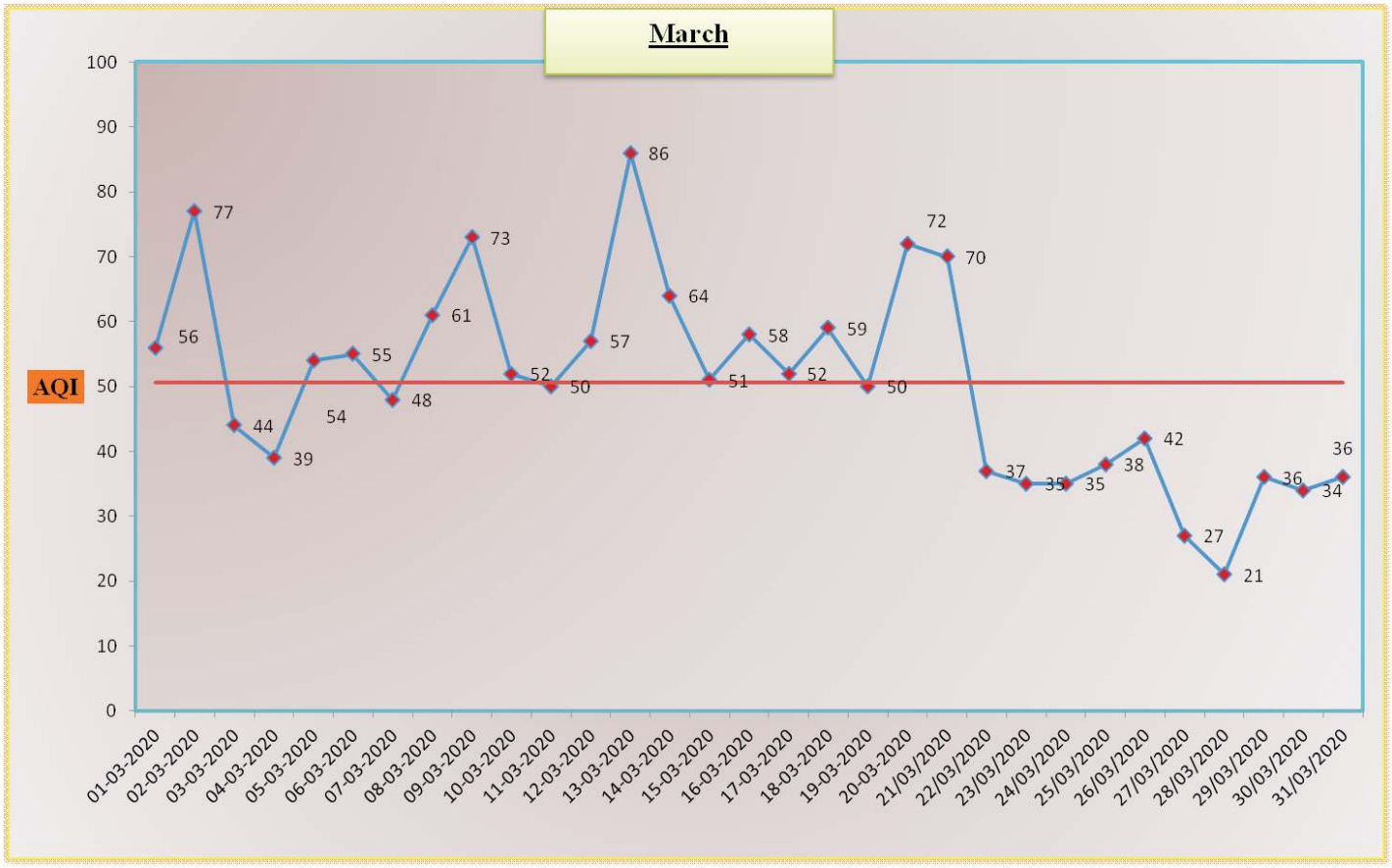
Air Quality Index (AQI)

Good (0–50)	Minimal Impact	Poor (201–300)	Breathing discomfort to people on prolonged exposure
Satisfactory (51–100)	Minor breathing discomfort to sensitive people	Very Poor (301–400)	Respiratory illness to the people on prolonged exposure
Moderate (101–200)	Breathing discomfort to the people with lung, heart diseases, children and older adults	Severe (>401)	Respiratory effects even on healthy people

The air quality index is an index for monitoring and reporting air quality of a region and predict the future trend as well. It also indicates as to how air pollution affects one's health within a short time period. The air quality of Chandigarh during the lockdown period for the months of March to June are presented depicting a comparative analysis of Air Quality Index in U.T. of Chandigarh for the aforementioned months. This analysis includes monitoring of total 14 pollutants namely, PM_{10}, $PM_{2.5}$, CO, So_2, NO, No_2, NO_X, Nh_3, O_3, Benzene, Toluene, Ethyl Benzene, Xylene, Oxylene..



Source: Chandigarh Pollution Control Committee (CPCC)

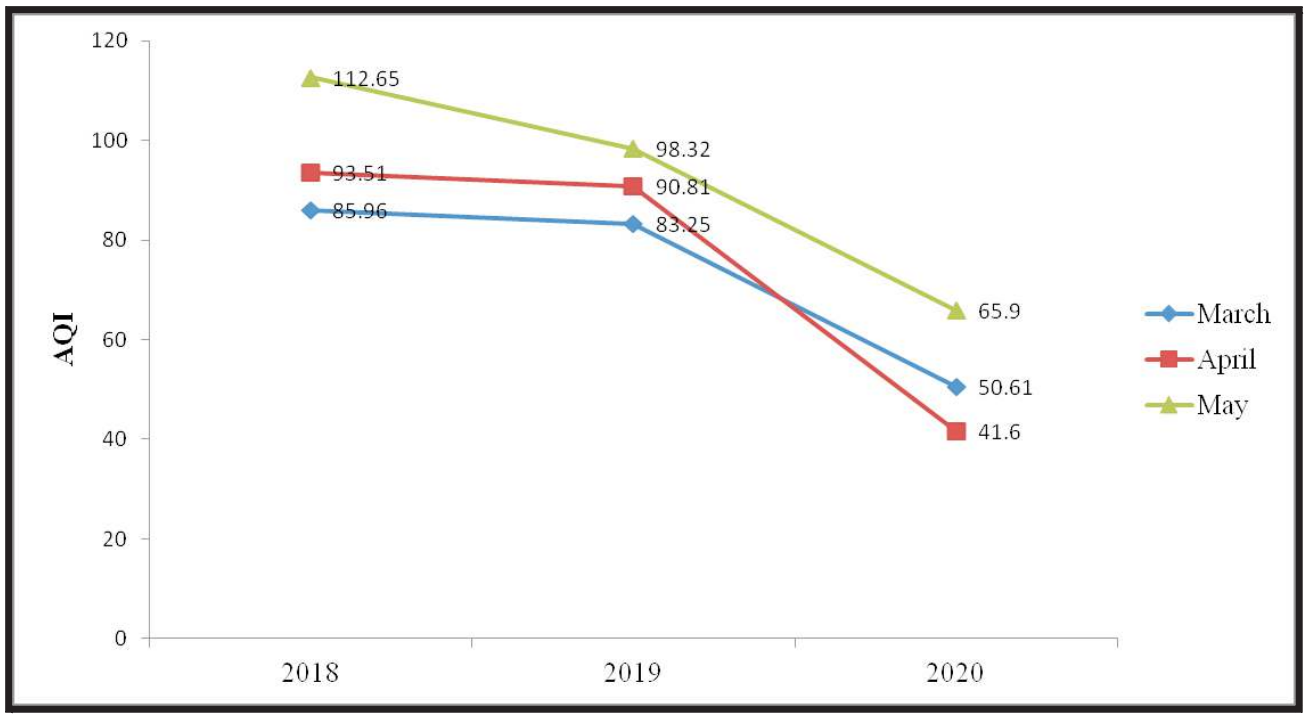
The overall AQI for the month of March have been satisfactory i.e on an average falling in the category of 51-100 mg/m3

Source: Chandigarh Pollution Control Committee (CPCC)

The average AQI of Chandigarh for the month of April falls in the category of 'Good' on an average i.e. 0-50 mg/m3 depicting minimal health impact and healthy air quality. Owing to the lockdown period imposed from 24th March 2020 to 30th May 2020, major air pollution causing pollutants such as PM 10 and PM2.5 have been restricted. There has been a progressive improvement in the overall air quality during the lockdown period. The AQI in Chandigarh was largely under 'Satisfactory' category in the week before start of lockdown period when compared to the progressive days where the AQI shifted to 'Good'Category.This change can be attributed to restricted industrial and commercial activities, minimal vehicular congestion and zero construction activities. Some of the major factors contributing to this decline are the meteorological factors such as scattered rains, increased wind speed and mixing height. A similar decline can be seen in the month of May, but due to partial opening of lockdown, the air quality can be generally seen as 'Satisfactory'

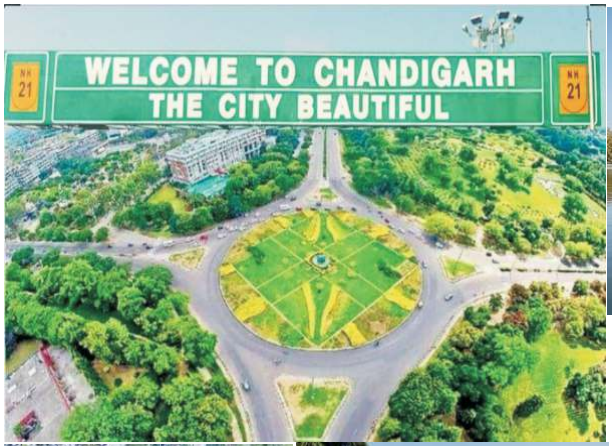
Source: Chandigarh Pollution Control Committee (CPCC)

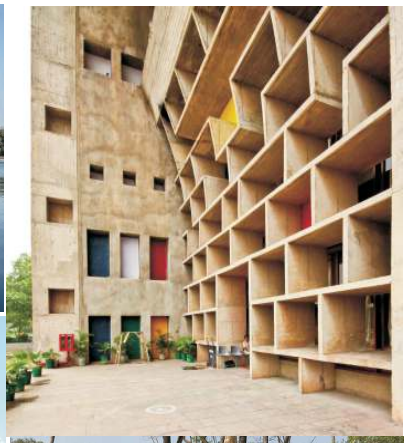
Comparative AQI for 2018, 2019 and 2020



Source: Chandigarh Pollution Control Committee (CPCC)

Above presented is the AQI for the years 2018, 2019 and 2020. It is comprehensible that the AQI for the previous years have been ranging between 'Moderate' to 'Satisfactory' when compared to the year 2020 for the months, March, April and May. The lock down period not only helped reduce the overall air quality of Chandigarh but also of the entire nation. This also helped reflect on the overutilisation of resources by mankind and the urgent need to reduce one's carbon and ecological footprint. The AQI for the year 2020 for the months, March, April and May have been 65.9 mg/m3, 50.61 mg/m3 and 41.6 g/m3 when compared to the previous month (2019) which were 98.32, 90.81 and 83.25 respectively. If the right initiatives are adopted with a bottoms-up approach, the air quality can be maintained throughout, effectively.





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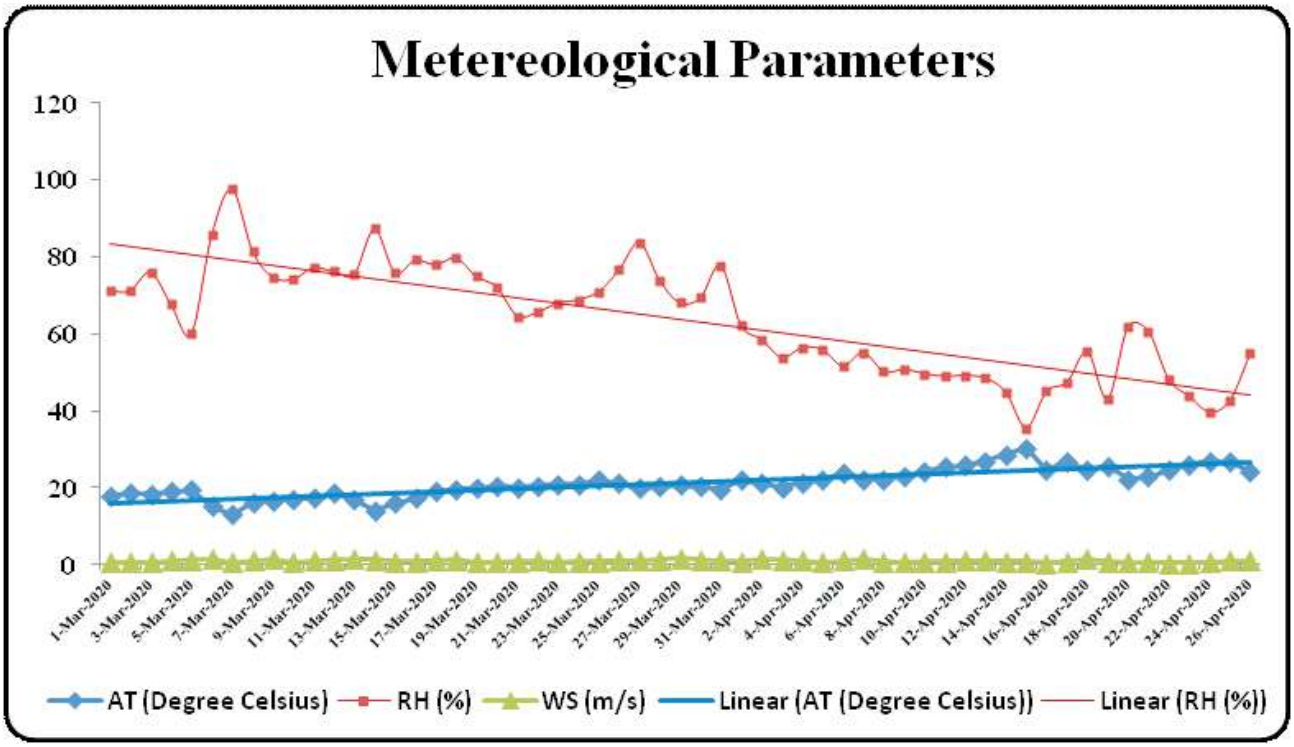
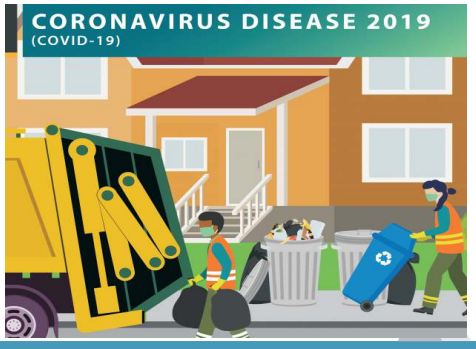
Meteorological Parameters



Source: Chandigarh Pollution Control Committee (CPCC)

The meteorological conditions of Chandigarh during the lockdown period also favored the city as the wind speed remained constant throughout the period except two to three days. The temperature shows inclination trends which is inversely proportional to the relative humidity. The values of temperature lies between 20 to 35 during the lockdown period.

Initiatives taken by Chandigarh Administration for COVID-19 Biomedical Waste



.In order to cope up with the COVID-19 pandemic, Central Pollution Control Board (CPCB) have proposed adequate guidelines for handling, treatment and disposal of waste generated during treatment/Diagnosis/Quarantine of COVID-19 waste.

Keeping in view of the above, Chandigarh Administration adopted suitable measures such as setting up of quarantine centers/camps, isolation wards, sample collection centers and laboratories, common biomedical waste treatment and disposal facilities, all covered under the ambit of BMW Management Rules, 2016. The current guidelines have been revised thrice, in order to address and incorporate initiatives on segregation of general solid waste and biomedical waste. Further, it also addresses safety of waste handlers / sanitation workers associated with healthcare facilities, Urban local bodies (ULBs) and Common Biomedical Waste Treatment Fcaility (CBWTFs) in handling of biomedical waste and solid waste generated from COVID-19 patients.

Guidelines for Handling, Treatment and Disposal of COVID-19 BMW

(a) COVID-19 Isolation Wards-

- A separate record file will be maintained for waste generated from COVID-19 isolation wards.
- A dedicated waste collection bin with clear label of COVID-19 waste are to be used with a temporary storage room prior to handing over to authorized staff of CBWTF.
- Specific items covered under PPE's, like goggles plastic coveralls, hazmet suit, nitrile gloves, face shield, splash proof apron are being collected in **Red bags.**
- In **Yellow bags**, items like mask (including Triple layer mask, N95 mask etc.), head cover/cap, shoe-cover, disposable linen gown, non-plastic or semi-plastic coveralls are being collected
- In order to ensure adequate strength and zero leaks, double layered bags will be used for collection of COVID-19 waste.
- Separate color coded bins (with foot operated lids)/bags/containers shall be used in wards with proper segregation techniques as per BMWM Rules, 2016.
- The general waste collected from the Containment Zones of Chandigarh should be collected and stored at a well fenced area (which must be demarcated by MCC near dumping ground) for minimum of 72 hours before final disposal. The collected general waste should be sprayed with some suitable disinfectant i.e. 1-2% sodium hypochlorite to disinfect it before final disposal
- Proper training will be imparted to by a designated nodal officer to waste handlers about infection prevention measures such as hand hygiene, respiratory etiquettes, social distancing, use of appropriate PPE, etc. via videos and demonstration in local language. The nodal officer shall in turn be trained by the Health department professional agencies in association with SPCB/ PCC of the States/ UT's.
- A dedicated mobile application, namely-'COVID19BWM' developed by CPCB shall be used to update details of COVID-19 biomedical waste generation.

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(B) Duties of SPCBs/PCCs

- In case of generation of large volume of yellow color coded (incinerable) COVID-19 waste that incapacitates the existing CBWTFs and BMW incinerators; Hazard Waste incinerators at existing treatment, storage, disposal facility (TSDFs) or captive industrial incinerators if any exist in the State/UT can be utilized. Although separate arrangement for handling and waste feeding should be ensured.
- It shall be the responsibility of SPCB/PCC to direct the ULB's to collect dry general solid waste in bags from quarantine centers / Quarantine homes / Home care units sprayed with disinfectant solution, for disposal in waste to energy plants/ industrial incinerators/ landfills.
- Submission of data on a daily basis via COVID-19BWM web portal developed by CPCB shall be done for tracking and verifying COVID-19 biomedical waste.
- Maintain records of COVID-19 treatment wards / quarantine centers / quarantines homes and allow CBWTFs to operate for extra hours as per requirement.

C) For Urban Local Bodies

- Create a separate team of workers who shall be engaged in door step waste collection at waste deposition centers or at quarantine homes or home care.
- Establish common waste deposition centers (as stipulated under SWM Rules, 2016) for receiving / collection of biomedical waste. For this purpose, existing Dhalaos if any may be converted suitably.
- Training should be provided for sanitization, about collection of biomedical waste, precautionary measures to handle biomedical waste.
- Impart training to waste collectors handling biomedical waste including training on methods of sanitization. Training shall be imparted through CBWTF operators
- The staff involved in handling and collection of general solid waste and biomedical waste from quarantine homes or home care centers shall be provided with adequate Personnel Protective Equipment such as three layer masks, splash proof aprons/gowns, heavy-duty gloves, gum boots and safety goggles. These PPEs are required to be worn all the time while collecting of waste from quarantine center/quarantine homes/home care/waste deposition centers.
- Waste collectors arriving at quarantine center or at home care may spray the disinfectant (1% sodium hypochlorite solution) on the bin used for yellow bags.

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Duties of a Common Biomedical Waste Treatment Facility

- ☐ Operator of CBWTF shall ensure regular sanitization of workers involved in handling and collection of biomedical waste.
- ☐ Provide training to waste handlers on infection & prevention measures, hand hygiene, respiratory etiquettes, social distancing in local language. Sanitation workers more than 50-yr of age should be posted for management of non-COVID waste.
- ☐ Workers shall be provided with adequate PPEs including three layer masks, splash proof aprons/gowns, nitrile gloves, gum boots and safety goggles.
- ☐ CBWTF operator shall register on 'COVID19BWM' Tracking App developed by CPCB and also ensure registration of Waste Handler (with vehicle) for entering the data of COVID-19 biomedical waste received and disposed
- ☐ COVID-19 waste should be disposed-off immediately upon receipt at facility.

Management of Wastewater from HCFs / Isolation Wards

Following are the guidelines recommended for HCFs and the operators of STPs:

- ☐ Responsible agencies for management of waste water are Healthcare Facilities / Isolation Wards / operators of terminal sewage treatment plants (PHED/Jal Board/etc.)
- ☐ HCFs and the agencies operating Sewage Treatment Plants should continue to ensure disinfection of treated wastewater as per prevailing practices to inactivate corona viruses.
- ☐ Operators of ETPs/STPs attached with discharge from Healthcare Facilities and isolation wards should adopt standard operational practices, practice basic hygiene precautions, and wear personal protective equipment (PPE) prescribed for operation of STPs. PPEs should include Goggles, face mask , liquid repellant coveralls, waterproof gloves and Rubber boots.
- ☐ During the period of COVID-19 pandemic, utilization of treated wastewater in utilities within HCFs may be avoided.

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To,

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